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BRAZIL WILL MEET RAYON NEEDS IN FEW YEARS

New Industry Makes Notable Progress in Producing Four Types of Yarn

Within a few years, Brazil will be able to meet most of her own rayon needs, according to predictions of some technical experts. At the present time, she is able to supply her rayon weaving and knitting industries almost entirely from domestically produced rayon. It is considered probable, however, that the demand for rayon products will continue to increase in Brazil, and that there will consequently be a need for imported rayon to supplement the domestic output.

The rayon industry in Brazil is comparatively new, with certain notable exceptions that include Reunidas Matarazzo S. A., in São Paulo, founded in 1924, and Companhia Nitro Química, Brasileira, founded in 1937.

In Brazil all four types of rayon yarn are being produced—viscose, acetate, cuprammonium and nitrocellulose.

Early Manufacture

In 1939 Brazil had three rayon plants, all located in the State of São Paulo. In that year the first plant produced 2,503,290 kilograms of yarn by the viscose process; the second, 1,512,942 kilograms by the acetate process; and the third, 2,160,000 kilograms of nitrocellulose yarn.

By 1942, the industry comprised five plants, with a total output of 7,480,660 kilograms of yarn, of which 3,280,200 kilograms were viscose yarn; 1,701,530 kilograms were acetate; 2,466,553 kilograms, nitrocellulose yarn; and 32,375 kilograms Bemberg (cuprammonium).

In 1943 production dropped somewhat because of raw-material shortages. Only 7,017,027 kilograms of rayon filament yarn were manufactured, made up of viscose; 2,596,392 kilograms; acetate, 1,889,052; nitrocellulose, 2,510,298; and cuprammonium, 21,330 kilograms.

Production of the 32,375 kilograms of cuprammonium yarn in 1942 was on an experimental basis. This was pronounced highly successful, and after some adjustments were made in machinery and equipment, full operation was begun in May, 1943, although that year's total amounted to only 21,330 kilograms.

Staple fiber is manufactured by one plant which produced 611,800 kilograms in 1942.

Recent Production

Most of the rayon yarn imports in recent years have been of the cuprammonium type for hosiery and knitted goods. As domestic production of this type of yarn increases, Brazil's output of all rayon yarns will be sufficient to supply the needs of the nation's textile plants, with an ever-expanding surplus for other Latin American countries. In fact, some exports were made in 1940, totaling 75,065 kilograms. The total increased to 1,012,684 kilograms in 1941.

An interesting development is a cooperative formed in the city of Americana, in the State of São Paulo. Numerous small mills combined to form the cooperative, which in 1944 operated 227 automatic looms, all made in Brazil. Monthly fabric production reportedly has averaged 200,000 meters, sold there and in nearby countries.

Number of Mills

At the close of 1938 Brazil had 10 weaving mills producing pure and mixed rayon fabrics. The output of all-rayon fabrics was limited to the lighter weights of cloth for women's undergarments, and small quantities of heavier solid color dress goods. Mixed fabrics (cotton and rayon and wool and rayon mixtures) were in greatest demand. Imports were restricted to a small volume of high quality dress prints. By early 1944, according to reports, 584 firms were consuming rayon in the manufacture of cloth, knit goods, and hosiery. These operated 13,000 looms and 2,319 knitting and hosiery machines.

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1944 LIVESTOCK SLAUGHTER

Cattle slaughter in Brazil's slaughterhouses, or frigoríficos, in 1944 totaled 933,240 head, as compared with 1,333,892 in 1943 and 1,810,195 in 1942, the peak year for which records are available.

Frigorífico figures for 1940-44, the total livestock slaughter for 1940-43, and frigorífico production expressed in percentage terms, are shown in the following table:

Year	*Cattle*	*Hogs*	*Sheep*	*Goats*
In frigoríficos:				
1940	1,692,321	656,675	93,372	3,203
1941	1,633,659	613,601	11,192	2,051
1942	1,810,195	685,938	17,443	2,516
1943	1,333,892	521,912	103,284	1,404
1944	933,240	658,741	108,089	11,858
Total reported:				
1940	4,595,891	3,721,031	885,791	475,430
1941	4,751,105	4,253,022	1,017,217	815,175
1942	4,920,374	4,019,352	689,342	855,518
1943	4,591,016	4,523,034	1,258,480	1,024,879
Slaughter in frigoríficos as percent of total:				
1940	36.8	17.6	10.5	0.7
1941	34.4	14.4	1.1	0.3
1942	36.8	17.1	2.5	0.3
1943	29.0	11.5	8.0	0.1

Slaughter in the frigoríficos is under Federal inspection but does not comprise the total Federally inspected. For the three-year period, 1940-42, cattle slaughtered in such establishments averaged approximately 73.5 percent of the total number slaughtered under Federal inspection. The volume of the frigoríficos for those years averaged 36 percent of the total for the country.

National Volume

In 1943 cattle slaughter in frigoríficos represented 29 percent of national volume, and for 1944 it is believed to have comprised an even smaller proportion. This opinion is based upon the fact that figures of municipal slaughterhouses and charqueades increased slightly in 1943 while the quantity in frigoríficos dropped sharply.

Furthermore, in 1944 the Commission of Supply encouraged slaughter in such establishments in order to facilitate the distribution of meat among the civilian population while discouraging—and in central Brazil prohibiting—the exportation of beef by frigoríficos.

Pork, the production of which averages about one-fourth that of beef, plays an important part in the interstate trading, although a fairly large quota is retained for conversion into sausages, hams, etc. Minas Gerais is the largest producer and consumer of pork. It exports this meat to other states in various forms—salted, dried and pickled. The States of Rio Grande do Sul and São Paulo, respectively the second and third producers, utilize almost all they produce in industry.

Bahia and Rio Grande do Sul are the largest consumers of sheep mutton, but the quantity consumed is only about 100,000 head per state.

Goat mutton is consumed in the Northeast of Brazil where it is always on sale, fresh and smoked in quarters and sides, and also salted in small flank cuts.

NUTRITION COMMITTEE

Formation of a National Committee of Nutrition, to deal with all problems pertaining to the diet of the Brazilian people, has just been announced. The Committee is under the jurisdiction of the National Council of Foreign Trade. The Director General of the Council will head the Committee on nutrition. The Committee will:

(a) study and outline a national policy of nutrition;
(b) examine the nutrition and the food habits of the Brazilian people, with due respect to their standard of living;
(c) follow and encourage research into nutrition problems and suggest the necessary measures to be taken;
(d) strive toward the correction of defects and deficiencies in the national diet and stimulate the proper educational programs;
(e) encourage the development of the dehydrated food industry in Brazil.

Other Duties

The National Committee of Nutrition will also:

(a) supervise the installation of factories of dehydrated foods, making certain that they are adapted to the area supplied;
(b) pass on plans for the establishment of dehydrated food factories, with regard to plant location, processes and classes of products to be manufactured;
(c) give all possible aid to research and tasks of a technical nature;
(d) supervise the publication of works about the improvement of dehydrated products principally for institutions, asylums, hotels and community kitchens in general;
(e) request all the priorities necessary for obtaining material indispensable to the construction of factories, as well as for the transportation of raw materials required for the making of finished products;
(f) establish the standards for each type of food, in order to maintain the industry at a high technical level;
(g) advocate the custom house facilities which may be considered necessary for the establishment or development of the dehydrated food industry.

* * *

CASHEW OIL FOR LEPROSY

Cashew nut oil, noted commercially as a source of phenol and plastic compounds, is now being used in the treatment of leprosy, according to the Review of Industrial Chemistry of Rio de Janeiro.

Experiments are being carried out on twenty patients of the Leprosarium of Maracanau, Ceará. The method was first used on animals in 1943 by Dr. Juarez Furtado, of Ceará.

CAROA RELIEVES BRAZIL'S JUTE SHORTAGE

Thousands of tons of coffee, cacao, cotton and numerous other products that Brazil will soon ship to devastated areas of Europe will be packed in sacks and wrappings of caroá fiber, a newly developed Brazilian substitute for Indian jute.

Wartime curtailment of supplies of Indian jute, used extensively in the manufacture of bags and cordage, led the Brazilian Government to seek an effective substitute among the fibrous plants growing in her vast territory. Examination of the many types finally narrowed down to caroá, not only because of its admirable characteristics, but because of its abundance.

Caroá grows wild on the barren plains and areas known as "sertões" and "catingas" of the interior. Its native habitat is the northeastern part of Brazil, about 100 kilometers from the coast—a region of sandy, clayey soil covered with sparse vegetation. Caroá grows over an expanse of about 20,000,000 acres extending from Bahia to Piauí. Pernambuco is the principal source, and Recife, its capital, the biggest exporter of the fiber. More than 2,250,000 acres are devoted to the cultivation of this plant in Pernambuco alone.

Its Various Names

Known variously as "caroá," "croá," "crauá" and "coroá," its scientific name is "Neoglaziovia Variegata," and it belongs to the Bromeliaceas family. Not unlike a century plant in general appearance, the caroá has from five to seven long, hard, thorny leaves. These often reach a length of 12 feet and yield from 12 to 14 percent of fiber, whereas most textile plants yield but 2 to 6 percent. About 22 kilos of caroá leaves produce one kilo of fiber.

Rains are infrequent in the region where the caroá grows, but the plant protects itself against lack of moisture in a novel fashion. In the wet season it stores up water in its leaves and stems, which have an outer membrane that prevents evaporation during dry spells.

Uses of Caroá

Fiber from the caroá leaves is hard and durable. Its resistance is three times as high as jute, and is ideally suited for the manufacture of rope, twine, packing thread, burlap, carpets, rugs, cables, cordage, fish nets and lines, and the weaving of canvas of linen-like quality. It has the advantage of being about 50 percent lighter than jute. Its soft, almost silky fibers are white in color, rich in cellulose, and have good elasticity.

Caroá fiber is also used in paper manufacture, producing a pulp comparable in every respect to paper pulp and other materials used in this industry. Clothing made of caroá does not wrinkle as much or as quickly as linen, yet is light in weight and of excellent durability.

Caroá, before its industrial use as a substitute for jute and hemp, was used almost exclusively by the people of Brazil's hinterland, or "sertão," in the manufacture of homemade articles such as sacks for grain, bags, knapsacks, hats, packing thread, cordage, nets, twine, and for many other purposes. The bran extracted from the caroá's leaves also provides cattle fodder during the long dry spells.

Early Development

Early industrial development of this valuable plant took place in 1926, when a firm in northeastern Brazil became interested in its development and sent a group of experts to England to study its possibilities in textile mills. Experiments in weaving caroá into canvas proved highly successful. As a result, in 1932, factories capitalized *at six million cruzeiros* ($300,000) were established in Pernambuco for the extraction of fiber, as well as its spinning, weaving and rope manufacture.

Encouraged by the Ministry of Agriculture, caroá fiber manufacture developed extraordinarily within a very short period. By 1939, 350 processing machines were in operation in Pernambuco, and in 1941 the state had more than 2,000.

Production by states during 1942, the heaviest year, was as follows:

State	*Amount*	*Value*
Pernambuco	11,063 tons	$829,700
Bahía	2,500 "	100,000
Paraíba	1,591 "	237,850
Ceará	595 "	44,650
Piauí	164 "	4,750
Alagôas	97 "	5,150
Sergipe	8 "	250
TOTAL	16,018 tons	$1,222,350

Caroá production from 1939 to 1944 was as follows, according to figures of the Ministry of Agriculture:

Year	*Amount*	*Value*
1939	2,414 tons	$154,500
1940	5,426 "	412,600
1941	5,916 "	496,350
1942	16,018 "	1,222,350
1943-44	10,000 "	

Exports of caroá from 1939 to 1944 were as follows:

Year	*Amount*	*Value*
1939	171 tons	$9,845
1940	898 "	66,293
1941	1,359 "	122,508
1942	4,270 "	840,700
1943	3,487 "	506,700
1944	6,396 "	537,400

* * *

BRAZIL GETS 14 NEW SHIPS

Fourteen merchant vessels for Brazil will be constructed in the United States within a year, it was recently announced in Rio de Janeiro by Mario Celestino, director of the Lloyd Brasileiro.

Acquisition of the ships was authorized by President Vargas. They will have a capacity of 7,800 tons each and will be paid for by the Lloyd Brasileiro, outside of the lend-lease program.

1945 SUGAR PRODUCTION EXPECTED

Thriving Industry Offers Opportunity Manufacturers Who Meet Requirement

Sugar production in Brazil for 1945 is expected to amount to 22,500,000 sacks of 60 kilograms, as compared with 22,471,500 sacks in 1944—an output which, if achieved, will be the largest in the history of the country.

Sugar cane is grown in all the states of Brazil. The largest producing states in the north are Pernambuco, Alagôas, Sergipe and Bahia, while those of the south are São Paulo, Rio de Janeiro and Minas Gerais.

According to the Brazilian National Institute of Sugar (Instituto do Açucar e do Alcool), 1,500,000 people are employed in the nation's sugar industry. This is approximately 17 percent of all gainfully employed people in Brazil. Thousands of laborers plant, hoe, cut, transplant the cane, and work in sugar mills. Because of the small percentage of machinery used, laborers perform by hand practically every operation connected with production.

Tenant Farmers

Most of the sugar mills make contracts with farm families for 3-year periods. The mill furnishes houses and areas for growing foodstuffs, medical care, and sometimes a school building. Tenants buy their supplies from the company store on credit, and accounts are settled at the end of the harvest. The mill plows the land, while the tenant plants the cane and does such work as cultivating, fertilizing and harvesting. The tenants are paid so much per ton of cut cane, 5 percent being deducted for ropes to tie the bundles. A family of five people can take care of 10 alqueires or about 50 acres, having a yield of 100 tons of cane per alqueire, or 21 tons per acre.

Under another rental system, the mill manager plows the land, and the tenant receives payment for cane grown. For harvesting, payment is made per 100 bundles of 18 thin or 10 thick canes.

Independent cane growers, in general, produce cane more cheaply than the mill owners. In Pernambuco, it is reported that the price paid to the grower for cane is about equal to the mill's cost of growing its own cane.

Varieties of Cane

The most successful varieties of cane, grown in the State of São Paulo, are technically referred to as P.O.J. 213, Co. 290 and Co. 281. In Rio de Janeiro and Minas Gerais, the more tropical P.O.J. 2878 is the dominant variety. Other successful varieties are P.O.J. 2727 and P.O.J. 2714.

The predominant cane in Paraíba is Flor de Cuba. In Sergipe the common variety is known as Pitu and in Alagôas, Demerara 625. However, in all three States, Javanese canes are planted by some mill owners. About 70 percent of the acreage of the Reconcavo region of Bahia, where most of the mill sugar of the State is produced, is planted to Co. 290. The State of Pernambuco has large areas in P.O.J. 2878.

There are about 50,000 small mills in operation in Brazil, each of which produces only a limited amount of sugar per year. The principal product of these "engenhos" or "banguês" is rapadura, which is an extract of sugar juice in solid form. The people in the interior of Brazil prefer this kind of sugar to any other. Consumption of rapadura in 1941 amounted to 4,140,123 bags of 60 kilograms each. The total of all sugar consumed that year was 20,148,351 bags.

Most of the "usinas," or modern Brazilian mills, do not have a large capacity and are not equipped to extract the maximum amount of sugar from the cane. Of the 320 "usinas" now operating, only 18 have crushing capacity exceeding 1,100 short tons in 24 hours and none over 2,200 tons. Many of these mills are remodeled "engenhos," and the only changes made have been the adoption of steam and the addition of some modern machinery, such as vacuum pans and centrifugals.

Costs of Production

Average costs of producing mill sugar for the 1939-40 crop season in the States of Pernambuco, Alagôas, Rio de Janeiro, and São Paulo were respectively 38.79, 37.70, 43.07 and 42.99 cruzeiros per bag—that is, approximately $1.94, $1.88, $2.16 and $2.14 in U. S. currency.

Production cost of factory-grown cane, over the last decade, has averaged from about 17.00 to 28.00 cruzeiros per metric ton of 2,204.6 pounds. The price varies according to the size of the crop, availability of labor, and climatic conditions. A large crop does not necessarily imply a lower production cost per metric ton. Often a greater tonnage to be harvested may be accompanied by a shortage of labor, and the mills and growers then pay higher wages.

The main items of production costs which hinder northeastern Brazil in competing with southern Brazil are higher expenditures of raw material, warehousing and transportation. Of these three, transportation is the biggest problem facing the sugar cane industry. Much of the cane has to be brought from the fields to the mill by ox carts or pack animals. In many regions the same methods are used to carry the cane to the waterfront where it is loaded on boats and then transported to the mills.

National Consumption

Brazil's consumption of sugar has almost doubled in the past decade. Annual per capita consumption has varied from 44 to 57 pounds. Rio de Janeiro, the Federal District, Minas Gerais, São Paulo and Rio Grande do Sul customarily consume 50 percent of the total production of the country.

According to data from the National Institute of Sugar and Alcohol, consumption of "usina" or mill sugar in 1943 totaled 13,192,291 sacks of 60 kilograms each, or

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771,337 sacks more than in 1942. Exact data are not available for "engenho" sugar, but consumption is estimated at about 7,000,000 sacks annually. In reality, "engenho" sugar is generally higher than indicated by the released figures, since much of it is produced in small mills deep in the interior which, because of their small yield, do not report production.

Alcohol Production

Surplus output of the northeastern states, beyond the normal requirements for consumption, amounts to between 7,500,000 and 8,000,000 sacks of sugar of all types. Of the southern sugar-producing states, Rio de Janeiro has an average surplus amounting to 1,500,000 to 2,000,000 sacks. Taking into account all states, after the needs of all other areas are supplied, sugar surpluses average between 9,000,000 and 10,000,000 sacks. This sugar is converted into alcohol, or exported.

Prior to World War II the National Institute of Sugar and Alcohol had effected a balance of supply and demand for sugar. War transportation difficulties, however, caused stocks to pile up, and at the end of the 1942-43 crop year they reached an all-time high of 3,651,464 sacks of all types of sugar.

Production of alcohol, which began in 1933, is Government-subsidized and is intended primarily to absorb the excess production of sugar. Molasses, surplus cane, and sugar are diverted to the production of alcohol which is mixed with gasoline and marketed as motor fuel.

Alcohol production has increased enormously since the Institute has been in operation. In 1931-32, production totaled 37,357,959 liters and in 1943-44, 75,231,859 liters.

During the war years the sugar mills and alcohol distilleries have been unable to purchase necessary equipment from abroad, and consequently both machinery and accessories are urgently required.

Need New Equipment

Only about 20 percent of the sugar-mill equipment now in use is of United States origin. Probably less than 10 percent of the total distillery and auxiliary equipment is of American manufacture. The reason is that the market has been dominated for many years by Europeans. As soon as hostilities cease, however, American machinery manufacturers should be able to enter the Brazilian market. To enjoy a favorable position, however, American prices, terms, and service must be equal or superior to those of European competitors.

Prospects for post-war expansion of the sugar industry appear to be good. The Institute will probably continue to support the small mills and avoid centralization of the industry in the hands of a few large mills.

Sugar Production in Crop Years 1925-26 to 1944-45

(1,000 sacks of 60 kilograms)

Crop year ending May 31	Usina sugar	Engenho sugar	Total	Percentage of usina sugar of total
1926	5,282	7,207	12,489	42.3
1927	6,378	9,214	15,592	40.9
1928	6,993	6,877	13,870	50.4
1929	8,000	7,700	15,700	50.9
1930	10,804	8,797	19,601	55.1
1931	8,256	8,740	16,996	48.6
1932	9,157	7,968	17,125	53.4
1933	8,746	7,524	16,270	53.7
1934	9,050	7,552	16,602	54.5
1935	11,136	5,419	16,555	67.3
1936	11,841	6,059	17,900	66.2
1937	9,550	5,446	14,996	63.7
1938	10,907	5,836	16,743	65.1
1939	12,703	5,637	18,340	69.3
1940	14,406	5,226	19,632	73.4
1941	13,512	7,055	20,567	65.7
1942	13,851	7,043	20,894	66.3
1943	14,680	6,788	21,468	68.4
1944	.....	.....	21,600	.....
1945	.....	.....	22,500	.....

Figures for 1944–45 are the latest available estimate.
Source: Compiled from publications of the Brazilian National Institute of Sugar and Alcohol.

Production of Sugar by States and Crop Years, 1941-42 and 1942-43, and Estimated 1943-44 and 1944-45

(In sacks of 60 kilograms each)

States	1941–42	1942–43	Estimated 1943–44	Estimated 1944–45
NORTH				
Acre	10,041	9,000	11,000	.....
Amazonas	7,095	6,500	6,300	.....
Pará	66,046	45,757	53,215	15,015
Maranhão	101,184	81,925	87,927	12,628
Piauí	81,199	51,400	61,500	2,571
Ceará	700,294	617,370	766,510	17,845
Rio Grande do Norte	196,085	190,223	159,499	69,542
Paraíba	728,520	753,520	750,158	591,101
Pernambuco	5,143,422	5,547,207	6,030,397	7,029,210
Alagôas	1,805,072	1,841,718	1,995,295	2,298,324
Sergipe	789,347	804,185	1,001,930	1,422,964
Bahía	1,411,111	1,606,055	1,400,623	1,198,951
Total (North)	11,039,416	11,554,860	12,324,354	12,658,151
SOUTH				
Espirito Santo	213,692	179,252	195,168	55,000
Rio de Janeiro	3,400,424	2,699,584	2,484,142	2,444,258
Federal District	.....	.....	.....	84,946
São Paulo	2,619,493	3,320,108	3,359,533	3,292,652
Paraná	18,863	16,000	20,000	10,000
Santa Catarina	481,092	462,538	440,294	61,108
Rio Grande do Sul	53,030	60,000	70,000	.....
Minas Gerais	2,865,233	2,994,840	2,517,974	532,175
Goiaz	171,852	145,000	150,000	.....
Mato Grosso	31,000	36,142	38,438	30,524
Total (South)	9,854,679	9,913,464	9,275,549	6,510,663
Total (Brazil)	20,894,095	21,468,324	21,599,903	19,168,814

The above figures are from the Brazilian Institute of Sugar and Alcohol, reprinted in *Foreign Commerce Weekly*.

SNAKE SERUM GUARDS LIVES OF WORKERS

The lives of thousands of Brazilian workers in essential industries are being safeguarded by snake-bite serums and other vaccines produced on Brazil's famous "Snake Farm," the Butantan Institute, near São Paulo.

Poisonous snakes, toads, spiders, centipedes, and other insects are among the many hazards faced by rubber gatherers in the forests of the Amazon, by farmers, and by workers in newly developed industrial areas.

The Butantan Institute occupies a beautiful park-like area of about a thousand acres. The poisonous snakes are kept in "serpentários" or enclosures open to the sky, and surrounded by low walls, on the inside of which is a wide moat or water—to discourage wall climbing on the part of the serpents. The snakes live in small dome-shaped houses.

Poison Extraction

An expert technician handles the snakes and extracts their venom. Clad in heavy shoes and leather "leggings," he enters the pit and catches snakes by means of a stick with a wire hook on one end. He expertly seizes the snake between his finger and thumb, just below its head, and carefully squeezes open the mouth to eject the poison into a glass receptacle. This process is called "milking."

After the poison is obtained from the snake it is dried into crystals. Five hundredths of a milligram is injected into horses kept on the grounds for the purpose. Every three or five days the dose is gradually increased. This is repeated until the horse becomes immune to the full amount of a snake bite.

As a result of the injections, the horse's system manufactures a yellowish liquid, called anti-toxin, to overcome the effects of the snake poison. This substance, scientifically separated from the blood corpuscles, not only immunizes the horse against snake bite, but if injected into a human being in the form of a serum, protects him in the same way.

The Institute now speeds up the serum process by first vaccinating the horse with an antitoxin, after which the animal is able to take a larger initial dose of poison.

A horse will supply a serum effective only against the snake poison with which it has been treated. Against other snake poisons the serum has little or no effect. Thus it is necessary to make three types of serums to counteract three principal poisons. These are: "Anti-crotalico" for rattlesnake bite; "Anti-bothropico" for the lachesis family which includes the jararaca, jarara-cuçú, urutú or coatiara; and "Anti-elapinio" for coral snakes.

Frequently the victim of a snake bite has no idea to which species his attacker belongs. For such cases a special mixed (polyvalent) serum is prepared. This type, known as "Antiophidic," is obtained from horses and mules immunized against several different types of snake venom. The antiophidic serum, though less active than either of the three specific serums, is more generally used and acts effectively in most cases.

The serums are put up in ampoules or glass containers of 10 cubic centimeters, each ampoule dated and clearly marked according to formula.

The serums are widely distributed throughout Brazil in sections where they are most needed, and as a result, the mortality following treated cases of snake bite has been reduced from 20 or 22 percent to from 2 to 5 percent.

Only in very exceptional cases does a victim of snake bite die within a period of 12 hours. In untreated cases death usually occurs only after about 48 hours, and cases are on record where death ensued only after several days.

A child victim requires a larger dose of serum than an adult, as young people are more susceptible to the venom. In severe cases, it may be necessary to repeat the injection over a period of days or weeks, but ordinarily a complete cure is usually effected in several days.

Types of Snake Bite

In Brazil the jararaca (Lachesis Lanceolatus) is responsible for almost 40 percent of the bites. The frequency of other snake bites is:

Cascavel (rattler)	.2 %	Lachesis Neuwiedii	0.8%
Urutú	1.2%	Coral	0.2%
Jaracuçú	1.2%	Non-venomous	1.4%

In about 53 percent of cases of snake bites it is impossible to learn the species responsible. It is interesting to note that the ratio of bites suffered by men, as compared with children and women is about 7 to 2, or less. Outdoor activities of men explain the higher rate.

The Butantan Institute, which is a part of the University of São Paulo, carries on an educational safety program. It teaches workers on plantations, small farms and construction jobs in Brazil how to avoid being harmed by snakes. Posters are sent all over the country depicting the importance of wearing leggings and of being on guard in infested localities. Workers are taught to watch sunny spots on cool days and shady spots on warm days. They must also watch swamps for water moccasins.

The Institute trains people how to catch snakes safely, and offers anti-venom serum in exchange for live serpents. In an average year, it receives more than 7,000 non-poisonous snakes and around 20,000 poisonous ones.

How to Catch Snakes

The Institute not only educates people as to the proper way of handling snakes, but also sends out a snare or trap which consists of a box (or bag) and a stick with a noose hanging from one end. When a snake sees a human being, it will usually crawl the other way, making it fairly simple to lay a noose in its path and then frighten it from the opposite direction so it will crawl through the noose. While one person holds the stick to tighten the noose, another holds the snake's tail to keep it from lashing about. After the snake's excitement lessens, the hunter grasps it just back of the head and drops it into the box or bag.

Venom from poisonous toads and spiders is also extracted at Butantan, and serums are prepared at the Institute to counteract their effects.

ITEMS OF GENERAL INTEREST

Expect Big Babassu Crop

Information just received from Maranhão by this office shows that the crop of babassú nuts of that northern state from December 1944 to February 1945 is likely to be the largest in wartime years.

Reports from producing areas indicate that a substantial increase over the total tonnage of last year's crop can be expected.

Up to this moment, no trouble has been encountered in the harvesting of the nuts, but some delays have occurred in transportation to the exporting centers, due to unfavorable winter weather. In May, however, the entire production was transported to São Luiz, and distribution to the domestic and foreign markets began.

Due to the low prices for babassú on the domestic market, observers of the local conditions predict that practically all the crop will be shipped to the United States, according to the agreement between the two countries.

In the first two weeks of April, shipments of over 5,000 tons of babassú nuts were made to the United States from São Luiz.

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Rail Ministry Urged

Creation of a special "circulation ministry" to take care of railroad building in Brazil, was recently urged at an economic conference in Rio de Janeiro.

Declaring that railroads are now Brazil's foremost problem, delegates who made the suggestion advocated the standardization of systems by the use of a single gauge, the shortening of present routes, and eventual connection of northern and southern sections of Brazil by rail. Such measures, they declared, would automatically increase living standards throughout the country. Plans include the purchase of modern locomotives and electrification whenever possible.

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Oil Increase Seen

Crude oil production in Brazil may be increased from about 10,000 liters to 100,000 liters per day by means of oil drilling equipment and oil producing machinery already ordered from the United States, according to an item in "Commercial Pan America" published by the Pan American Union.

Promising potential sources of petroleum in Brazil include Bahia, the upper Amazon Basin and the Paraná Basin, on the basis of the exploratory drillings made by the National Petroleum Council and the United States oil companies.

Total 1944 consumption of petroleum products amounted to about 65 percent of the 1941 level, or about 5,200,000 barrels.

Gold Museum

Establishment of the Gold Museum, for collecting, classifying, preserving and exhibiting historical and artistic objects relating to gold mining and its evolution, technique and influence in the economic and social development of Minas Gerais and all Brazil was recently provided by Presidential Decree No. 7,483 of April 23, 1945.

The Gold Museum will be located in the former Treasury Building in Sabará, Minas Gerais, Brazil's leading gold mining state.

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Swedish Trucks for Brazil

The Volvo Company, Swedish makers of trucks, are already advertising in the Rio de Janeiro newspapers that they are accepting orders for immediate shipment of truck and bus chassis of all sizes, according to a recent news bulletin of the American Brazilian Association.

The company also advertises farm tractors and military vehicles of various sorts, the report adds.

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Allow Re-Marking of Bags

Bags containing imported merchandise which are marked with non-indelible ink or which do not fulfill the other bag-marking regulations as provided in Article 42 of the preliminary provisions to the Brazilian customs tariff, may be re-marked on arrival in Brazil as long as the war emergency lasts, according to a recent government order.

The present Brazilian bag-marking regulations require marking with letters of more than 15 centimeters or designs printed in indelible ink, arranged diagonally, on both sides of the bag. Bags so marked are subject to the same import duty rates as the goods contained therein.

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Law Stimulates Quality of Wool

Under a recent government Decree Law, which became effective January 1, 1945, all wool in Brazil is commercially classified and graded. This step was taken to improve the quality of Brazilian wool, increase the number and quality of native flocks, and stimulate domestic production of textiles.

Though the new law applies to all the nation's wool-producing areas, it is of special significance to Rio Grande do Sul, the chief wool producing state. This state, famous for its rich pastures, contains over 10,000,000 sheep, or more than 50 percent of Brazil's total sheep population.

The State of São Paulo is the largest producer of woolen articles, consuming annually about 3,500,000 kilos. Rio Grande do Sul ranks next with about 2,000,000 kilos, and the Federal District third, with about 1,500,000 kilos.

TRADE OPPORTUNITIES

The Brazilian Government Trade Bureau has received the following inquiries from businessmen in Brazil, who desire to export or import the products listed below. We suggest that the parties interested write directly to these firms, via airmail, as well as to this Office, at 551 Fifth Avenue, New York 17, N. Y.

The Following Brazilian Firms Wish to Export to the United States:

▸**Tobacco;** also wishes to contact American tobacco magazines—Fridolino Broenstrup, Rua Voluntários da Pátria 337, Porto Alegre, Rio Grande do Sul, Brazil. Interested in representing American manufacturers in the Southern part of Brazil.

▸**Hides and Skins; Menthol; Silk Yarn; Christmas Tree Ornaments; Canvas**—Assumpção & Filhos Ltda., Rua São Bento 329, São Paulo, Brazil.

▸**Castor Seeds; Hides and Skins**—J. Santos, Camboim & Cia., Rua Arrojado Lisboa 37, Campina Grande, Paraíba, Brazil.

▸**Essential and Industrial Oils; Castor, Linseed, Oiticica, Rosewood, Eucalyptus, Mint, Lemon, Lemongrass, Bergamota or Lima, Tangerine, Orange, Neroli, Sassafras and Vetiver; Cologne and Toilet Waters; Extracts for the Perfume Industry; Lipsticks; Deodorants; Lotions, Powders, Talcum Powders and Rouges; Eyeglasses; Toothbrushes; Toys; Zippers; Rubberized Cloth; Ladies' and Men's Hosiery; Cotton Sheeting "Percale"; Neckties; Handkerchiefs**—Companhia Copeba S. A., Avenida Rio Branco 128, Rio de Janeiro, Brazil. (Formerly known as Companhia Petrolifera Copeba S. A., listed with the American Foreign Credit Underwriters, 170 Broadway, New York City.)

▸**Powdered Soap; Kieselguhr and Isolating Materials; Beef Liver Extract; Beef Pituitary Powder; Dehydrocholic Acid; Cholic Acid; Shark Liver Oil; Bile Salt; Menthol Crystals USP XLL; Eucalyptus, Lemon, Linalol, Bergamot Oils; Heliothropine; Dementholized Peppermint Oil** (40-50% Menthol Contents); **Orange Oil USP XLL; Mandarin Oil; Sassafras Oil** (84% Safrol); **Vetiver; Safrol; Ouricuri Wax** (4% or less impurity); **Sugarcane Wax; Jatobá Resin; Emetine and Caffeine**—Irmãos Alvim & Cia. Ltda., Avenida Presidente Wilson 298, Rio de Janeiro, Brazil.

▸**Banana Paste, Made of Several Types of Banana—77,000 Pounds Per Month**—Debana Produtos Alimentícios Ltda., Rua 28 de Setembro 295, Santos, Brazil.

▸**Cotton Textiles**—Mr. Manoel Moura, of Seabra & Cia. of Rio de Janeiro, Brazil, at present in the United States, may be reached c/o Silva & Soares, 82 Wall Street, New York 5, N. Y. This company, one of the finest in Brazilian business, is rated with the American Foreign Credit Underwriters. Mr. Moura has samples with him and will quote prices upon request.

▸**Perfumes, Talcum and Dusting Powders; Toilet Soap; Cologne and Toilet Waters**—Chalmers Perfumes do Brasil S. A., Rua Tavares Ferreira 13, Rio de Janeiro, Brazil. (Manufacturers, rated with the National City Bank of New York, and R. G. Dun & Bradstreet.)

▸**Babassú Nuts; Araroba; Babano Flour; Beeswax; Black Tea (Ceylon Type); Dried Blood; Bone Glue; Brazil Nuts; Cocoa Butter; Cottonseed Cake; Canvas; Castor Seeds; Grated Coconuts; Coconut Milk; Raw Cotton; Tonka Beans; Dextrine; Dried Hides; Gauze for Bandages; Gelatine; Guaraná in Sticks; Vegetable Ivory (Jarina); Kid Leather; Leather Soles; Castorseed Meal; Manioc Flour and Starch; Maté or Brazilian Tea; Andiroba, Babassú, Castorseed and Dendé Oils for Soap Manufacturing; Oiticica, Peanut, Patauá, Rosewood Oils; Ouricuri Wax; Piassava Fiber, in Bundles; Angico and Jatobá Resins; Rice; Rotenone; Tapioca; Seed Pearl and Flake; Timbó** (for manufacturing Insecticides); **Tripe**—Silva Fontes Exportadores Ltda., Rua Conselheiro Saraiva 14, Rio de Janeiro, Brazil. (Formerly known as Silva Fontes & Cia. Ltda., rated with the Bank of London & South America Ltd., and all banks in Rio de Janeiro.)

The Following Brazilian Firms Wish to Import From the United States:

▸**Oilcloth, for Kitchen Tables and Shelving; Rugs and Carpets (Felt Base)**—Brunstein & Guiguer, Rua Machado Coelho 48, Rio de Janeiro, Brazil.

▸**Bathroom Equipment and Fixtures; Hardware and Tools Used in Construction; Waterproof Coatings and Roofing Materials; Paints for Cements and Other Building Materials**—Ricardo Katz Castro, Avenida Rio Branco 52, Rio de Janeiro, Brazil. This firm wishes to import for their own account, as well as in the capacity of representatives and distributors for American Manufacturers or Exporters.